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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/699,819

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Jang-Kun Song

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10/13/2004

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EXAMINER

QI, ZHI QIANG

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary****Application No.**

10/699,819

**Applicant(s)**

SONG ET AL.

**Examiner**

Mike Qi

**Art Unit**

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-28 and 35-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-28 and 35-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/559,483.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 23-28 have been amended and new claims 35-39 have been added.

#### ***Response to Arguments***

1. Applicant's arguments filed on Aug.4, 2004 have been fully considered but they are not persuasive.

Applicant argues that this application has Korean Paten Application filed on June 30, 1999 so that this application has the priority date of June 30, 1999 (filed in US on April 27, 2000), and the reference Nishikawa was filed in the US on January 18, 2000.

However, Applicant does not file the English translation of the Korean Application. Therefore, the reference Nishikawa can be used for the rejection.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 23 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,278,503 (Nishikawa et al).

Claims 23 and 35, Nishikawa discloses (col.1, line 15 – col.9, line 23; Figs. 8A, 8B) that a method of fabricating a liquid crystal display comprising:

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- forming a gate line (51) and gate electrode (52), i.e., a gate line assembly comprising a gate line and a gate electrode;
- depositing a gate insulating layer (such as 54);
- the TFT structure having a semiconductor pattern formed on the gate insulating layer, and the TFT having source electrode and drain electrode;
- the data lines (57) crossing the gate lines (51) defining a pixel region; and the data line (57) is connected to the source/drain electrode, so that the data line assembly comprises source/drain electrode;
- pixel electrode (55) composed of ITO (indium tin oxide) (transparent conductive layer), and the pixel electrode is connected to the source/drain electrode (see Fig.8A), and that is conventional;
- a protective layer such as interlayer insulating layer (54) functions as a passivation layer formed on the data lines (57), the semiconductor pattern and gate insulating layer; that is a conventional structure of a liquid crystal display.

Although Nishikawa does not expressly disclose that forming the protective layer and the gate insulating layer to expose a portion of the drain electrode and to form a protrusion and a opening in the pixel electrode and dividing the pixel region into a plurality of domains.

However, Nishikawa discloses (col.8, line 63 – col.9, line 23; Figs.8A, 8B) that the end portions of the pixel electrodes (6) protrude upward (forming an opening of a pixel electrode, and the pixel electrode is connected to the drain electrode), and the

Fig.8B shows the pixel electrodes (6) partially cover the protrusion, such that the orientation control slope portions (7a, 7b) are formed in the orientation control film covering those end portions, therefore, the orientation of the liquid crystal molecules would be controlled on both sides of the protruding portion, and the protrusion and the opening dividing the pixel region into a plurality of domains, and resulting a broader viewing angle.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the pixel electrode having opening and protrusion, and the pixel electrode covers the protrusion pattern as claimed in claims 23 and 35 for achieving a broader viewing angle.

4. Claims 24-28 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa as applied to claim 23 above, and further in view of applicant admitted prior art (AAPA)

Claim 24, the lacking limitation is such that forming color filter, common electrode and conjoining the two substrates.

However, AAPA discloses (page 5, lines 9-19; Figs, 2A, 2B) that the common electrode (21) provided on the top substrate (20), and before the ITO processing, the color filter formed on the substrate (20), such that the color filter formed on the substrate and the common electrode formed on the color filter through a transparent conductive layer (ITO), and that is a conventional process to fabricate a liquid crystal display in order to obtain a color display. Concerning the limitation such that conjoining the two substrates that is conventional process to assembly the liquid crystal display device.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange color filter as claimed in claim 24 for achieving a color display.

Claim 25, Nishikawa discloses (Fig.8B) that a vertical alignment film (56) coated onto the pixel electrode (6); a vertical alignment film (62) coated onto the common electrode (61); and injecting a liquid crystal (70) into the liquid crystal cell.

Claim 26, Nishikawa discloses (col.1, line 50 – col.2, line 24) that the liquid crystal (70) has negative dielectric constant anisotropy.

Claim 27-28, Nishikawa discloses (col.1, lines 15 – 55) that the pixel electrode composes of ITO (transparent conductive layer), and the common electrode composed of ITO (transparent conductive layer).

Claim 36, Nishikawa discloses (Figs.8A,8B) that a pixel electrode (6) connected to the drain electrode of the TFT and then connected to the data line (57), and the pixel electrode (6) covering the protrusion (at least covering the sides of the protrusion).

Claims 37-39, Nishikawa discloses (col.1, lines 15 – 55; Figs.8A, 8B) that the pixel electrode composes of ITO (transparent conductive layer), and patterning the pixel electrode (6) having protrusion and opening, and the end slope portion of the protrusion parallel to the end slope portion of the opening, so that the orientation control slope portions (7a,7b) tilts the initial orientation of the liquid crystal molecules, so that would divide the pixel region into a plurality of domains.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi  
October 2, 2004



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER